



LEGEND

QUATERNARY

Q Glacial and glacio-fluvial deposits; sand, gravel, boulder clay, till, and peats.

CARBONIFEROUS

CB BARACHOIS GROUP (Pennsylvanian–Upper Carboniferous)

C SHANADITHIT FORMATION: Mainly poorly indurated red and grey sandstone and conglomerate, minor limestone and siltstone.

SILURIAN

SPmi PUDDLE POND COMPLEX (ca. 431 Ma)

SPsc Folded to unfoliated, mainly layered cumulate sequence of anorthosite, troctolite, olivine norite, norite, gabbronorite, olivine gabbrro, and gabbrro, with minor pyroxenite. Minor alteration to epidote, hornblende and/or actinolite and chlorite.

ORDOVICIAN

OSbtg SOUTHWEST BROOK COMPLEX (ca. 461 Ma)

OSbtg Generally well foliated, white, medium- to coarse-grained, mainly biotite- and/or hornblende-bearing, tonalite and/or granodiorite. Includes minor quartz-diorite. Commonly contains abundant mafic enclaves or schollen of diorite, amphibolite, and hornblende. Mafic enclaves or schollen are locally so abundant that the rock appears agnathic. The mafic enclaves/schollen in part probably represent relict co-mingling structures largely destroyed by continuous veining by tonalite. Commonly displays epidote alteration. Locally includes crosscutting pink muscovite-bearing apite, granite and pegmatite dykes of the Lake of the Hills Intrusive Suite (SLi). Mafic rocks commonly have mixed as to non-apatite compositions. Locally orthopyroxene- or clinopyroxene-bearing in the Cormacks Lake complex.

OSgt Generally well foliated, medium- to coarse-grained, biotite and hornblende-bearing quartz diorite and/or tonalite. Characteristically contains abundant blue quartz eyes and displays various degrees of epidote alteration. Apatite structure due to enclaves or schollen of amphibolite and hornblende is common. Contains locally apite and pegmatite dykes, and massive quartz xenoliths (2–5 cm). Is intruded by members of Ocbt.

OSg Foliated to unfoliated biotite granodiorite and/or granite, locally with K-feldspar megacrysts. May in part be equivalent to SPgt. Some granites containing muscovite and may be equivalent to SLi.

OCg NEOPROTEROZOIC TO MIDDLE ORDOVICIAN CORMACKS LAKE COMPLEX (> 453 Ma)

OCmi Mainly well-bedded granodiorite to tonalite orthogneiss (ca. 483 Ma).

OCmi Metagabbro, orthopyroxene- and/or clinopyroxene-bearing.

COcmv Strongly foliated, locally pillowed or layered mafic volcanic rock. Probably also includes minor diorite and gabbrro. Generally intensely metamorphosed into garnet and/or clinopyroxene-bearing amphibolite. Some mafic rocks contain layers rich in gneiss, which suggest that some volcanic rocks experienced pre-metamorphic hydrothermal alteration.

DENNIS POND COMPLEX (> 488 Ma)

COdpsb Mainly gabbrro. Includes minor troctolite and trondhjemite.

COdpsa Mainly layered ultramafic rock. Includes dunite, harzburgite, tierzoite, wehrlite, websterite, pyroxenite. Locally contains chrome-rich layers. Also includes minor gabbrro and trondhjemite. Variably metamorphosed and altered to antophyllite, cumingtonite, serpentine, talc, and chlorite.

NODpsm Characteristically unlayered and chaotic, strongly metamorphosed and migmatitic mélange, consisting of abundant large blocks and cobbles of mafic rocks in a pelitic to semipelitic matrix.

NODps Mainly chlorite and muscovite bearing schistose mixture of granitoids and metasediments, with local tectonic inclusions of other Dennis Pond complex units; the metasediments in part are correlative to Mischief Mélange of Hall and van Staal (1988).

NOSgs Tectonic zone consisting of gneissic mylonites and calc-silicates, strongly deformed paragneisses, orthogneisses, gneiss, and anorthosite, mylonite and calc-silicate protomylonites are principally sedimentary (NOSgs), but also granitoid (OSgtg), and anorthosite (MSMA); may include minor amounts of Silurian leucogabbro (SLg).

NEOPROTEROZOIC AND OLDER STEEL MOUNTAIN COMPLEX

MSMA Massive to strongly foliated pegmatite: white to lilac anorthosite, gabbric anorthosite, and anorthosite gneiss, cumulate textures along the margin.

MNCL UNDIFFERENTIATED CORNER BROOK LAKE COMPLEX (ca. 1510 Ma)

Quartzite-kelapsite gneiss and migmatite, with interbedded amphibolite, minor quartzite, marble, and quartz-kelapsite-mica pegmatite, orthopyroxene-bearing gneisses may include gneisses related to Hens Hill Complex (Nenit) (see OF4021), a local occurrence of apite and pegmatite dykes.

Geological boundary (approximate, assumed, gradational)

Fault, undefined (assumed)

Fault, approximate (sinistral)

Uncertain

Outcrop (this study, compiled)

Bedding, top known (overturned)

Bedding, top unknown (inclined, vertical)

Foliation: S₁, main and/or composite (inclined, vertical)

Lineation: main, mineral or extension

Z-fold, plunge and plunge direction (generation unknown)

M-fold, plunge and plunge direction (generation unknown)

U/Pb zircon age determination

Mineral occurrence; National Mineral Inventory Number

REFERENCES

Dunning, G.R., 1964. The geology, geochemistry and regional setting of the Antecapitulum Complex and related rocks of southwestern Newfoundland. Ph.D. thesis, Memorial University, St. John's, Newfoundland, Canada, 433p.

Dunning, G.R., O'Brien, S.J., Coleman-Sadd, S.P., Blackwood, S.P., Dickson, R.F., O'Neill, P.P., and Krough, T.E., 1990. Structural geology in the Newfoundland Appalachians. *Journal of Geology*, v. 98, p. 855–873.

Hall, L.A.F., and van Staal, C.R., 1999. Geology of the southern end of the Long Range Mountains (Dashedwood subzone), Newfoundland. Geological Survey of Canada, Open File 3727, scale 1:50 000, doi:10.4095/10484.

Hess, R.K., and Dunning, G.R., 1979. Geology of the Puddle Pond map area, southwestern Newfoundland. In: Current Research, Part A. Geological Survey of Canada, Paper 79-1A, p. 305–310.

Onesick, D., Tod, J., and Kilb, G., 2001. Red Indian Line, airborne geophysics compilation (part 1), central Newfoundland. Geological Survey of Canada, Open File 3623, doi:10.4095/12737.

Onesick, D., Tod, J., and Kilb, G., 2002. Red Indian Line, airborne geophysics compilation (part 2), central Newfoundland. Geological Survey of Canada, Open File 4254, doi:10.4095/21326.

van Bemm, J., and Currie, K.L., 1988. Geology of the Puddle Pond (12-A/8) and Little Grand Lake (12-A/13) map areas, southwestern Newfoundland. In: Current Research, Newfoundland Department of Mines and Energy, Mineral Development Division, Paper 88-1, p. 89–107.

Sample number	NL geochron database	UTM (zone 21, NAD 83) easting	UTM (zone 21, NAD 83) northing	Crystallization age / Ma	Year of analysis	Laboratory	Reference	
81-HPAD-216		8064	424130	5367602	431 ± 2	1990	ROM	Dunning et al., (1990)
POB-SP-02-788 (27516)			421893	5357980	ca. 463	2002	GSC	McNicoll and Pehrsson, unpublished
POB-SP-02-78C (27523)			423137	5357921	ca. 430	2002	GSC	McNicoll and Pehrsson, unpublished

GSC - Geological Survey of Canada, Ottawa, Ontario, Canada
ROM - Royal Ontario Museum, Toronto, Ontario, Canada

Table 1. U-Pb geochronology.

Mineral Occurrence ¹	UTM (zone 21, NAD 83) easting	UTM (zone 21, NAD 83) northing	Name	Commodity	Status
Au 001	403227	5365530	Flat Bay Brook	Au, Ag, Cu, Sb, As	Showing
Cr 001	412700	536650	Dennis Pond South Chromite	Chromium	Showing
Fe 001	401450	5361750	Bishop North	Fe, V, Ti	Past producer (dormant)
Fe 002	401050	5361400	Bishop South	Fe, V, Ti	Past producer (dormant)
Fe 003	400800	5361100	Bishop No. 3	Fe	Prospect
Fe 004	399800	5359450	Hayes Prospect	Fe, V, Ti	Prospect
Fe 005	398250	5357450	Hudson Prospect	Fe, Cu	Prospect
Fe 006	401630	5365500	Brady Brook East	Fe	Showing
Fe 007	406550	5369050	Barachois Pond	Fe	Showing
Fe 008	426020	5368100	Southwest Brook South	Fe	Showing
Fe 009	412700	5368600	Dennis Pond South Iron	Fe	Showing
Gyp001	394850	5361000	Sheep Brook	Gypsum, anhydrite	Developed prospect
Gyp002	392450	5358600	Coal Brook	Gypsum, anhydrite	Past producer (dormant)
Pv001	425500	5371450	Southwest Brook Northeast	Pyrite	Showing

Notes:
Modified after the Mineral Occurrence Data System (MODS) of the Geological Survey of Newfoundland and Labrador.
¹ National Mineral Inventory Number for the form 0130/014-010.

Table 2. Mineral occurrences.

12-B/16	12-A/13	12-A/14	12-A/15	12-A/16	2-0/13
				OF4546	OF4545
12-B/16	12-A/12	12-A/11	12-A/10	12-A/9	2-0/12
OF4821	OF1668	OF1669	OF4544	OF4547	
12-B/8	12-A/5	12-A/8	12-A/7	12-A/6	2-0/5
OF1666	OF1664	OF1667	OF4597		
12-B/1	12-A/4	12-A/3	12-A/2	12-A/1	2-0/4
	OF1665				

NATIONAL TOPOGRAPHIC MAP SYSTEM REFERENCE AND INDEX TO KNOWLEDGE GEOLOGICAL SURVEY OF CANADA MAPS

Figure 1. The principle tectonic zones of Newfoundland and Labrador and the position of the Red Indian Line.